



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/694,220	10/28/2003	Seong-Hyok Kim	0630-1863P	3006

2292 7590 08/30/2006

BIRCH STEWART KOLASCH & BIRCH  
PO BOX 747  
FALLS CHURCH, VA 22040-0747

EXAMINER

CHEN, TIANJIE

ART UNIT PAPER NUMBER

2627

DATE MAILED: 08/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/694,220

Applicant(s)

KIM ET AL.

Examiner

Tianjie Chen

Art Unit

2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 June 2006.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1 and 3-9 is/are rejected.  
7) ☒ Claim(s) 2 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## ***Non-Final Rejection***

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Election/Restrictions***

2. Applicant's election without traverse of Group Ia with claims 1-9 in the reply filed on 06/26/2006 is acknowledged.

### ***Claim Objections***

3. Claim 8 is objected to because of the following informalities:
  - In claim 8, line 2; "SiO<sub>2</sub> and Si<sub>3</sub>N<sub>4</sub>" should be changed to -- SiO<sub>2</sub> and Si<sub>3</sub>N<sub>4</sub>--.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 3 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 3 recites the limitations "the lower fixed electrode, the upper fixed electrode and moving electrode" and claim 9 recites the limitations "the upper fixed body" and "the moving body." There is insufficient antecedent basis for this limitation in the claim.

It is suggested to change "claim 1" to "claim 2" in line 1 in claims 3 and claim 9, respectively, to overcome above rejection.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 4, and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Boutaghou et al (US 6,275,454).

Claim 1, Boutaghou et al shows an optical pickup head of an optical recording reproducing apparatus, including: a slider 20 (Fig. 2; column 3, line 24) installed so as to be slidable along the surface of an optical disk and having a convergence lens 40 (Fig. 2, column 3, lines 36-37) at a side for focusing light; and a micro-actuating means 44 installed so as to be laminated with the slider in order to adjust an optic axis of the convergence lens minutely (Column 3, lines 43-48).

Claim 4, Boutaghou et al shows that the slider is made of a transparent material (Column 3, lines 24-25).

Claim 5, Boutaghou et al shows that an air bearing surface is formed on the bottom surface of the slider corresponded to the optical disk (Column 3, lines 29-33).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boutaghou et al in view of McDaniel (US 6,700,838).

Claim 6, McDaniel shows an optical pickup head, wherein a magnetic coil 416 is formed at the slider (Fig. 3) in order to magnetize the optical disk (Column 4, lines 18-22). MaDaniel further shows that this head is used for a magneto-optical disk, which can reach recording density up to 100 Gb/in<sup>2</sup> (Column 4, lines 62-67). One of ordinary skill in the art would have been motivated to add the coil to use the optical pickup head for a magneto-optical disk to reach a high recording density.

Claim 7, MaDaniel further shows in Fig. 3 that the magnetic coil is inserted into an insertion groove formed at the bottom surface of the slider.

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Boutaghou et al and McDaniel as applied to claim 7 above, and further in view of Pust et al (US 6,661,605).

McDaniel does not show an optical pickup head of an optical recording reproducing apparatus, wherein filler having at least one of SiO<sub>2</sub> and Si<sub>3</sub>N<sub>4</sub> is charged around the circumference of the magnetic coil of the slider.

Pust et al shows a coil, which has a filler having at least one of photoresist, AlN, SiO<sub>2</sub> and Si<sub>3</sub>N<sub>4</sub> is charged around the circumference of the magnetic coil of the slider, which has comparable CTE to match the CTE of the material forming the coil (Column 4, lines 7-13). One of ordinary skill in the art would have been motivated to use SiO<sub>2</sub> and Si<sub>3</sub>N<sub>4</sub> for having a matched CTE.

***Allowable Subject Matter***

8. Claim 2 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 3 and 9 would be objected if they have been changed to dependent on claim 2.

- With regard to claim 2, as the closest reference on record, Boutaghou et al (US 6,275,454) shows an optical pickup head of an optical recording reproducing apparatus including: a slider installed so as to be slidable along the surface of an optical disk and having a convergence lens at a side for focusing light; and a micro-actuating means installed so as to be laminated with the slider in order to adjust an optic axis of the convergence lens minutely; **but fails to show** a lower fixed body installed at the top of the slider, having plural lower fixed electrodes on the inner circumference at regular intervals; an upper fixed body installed at the top of the lower fixed body so as to be corresponded to a shape of the lower fixed body and have plural upper fixed electrodes on the inner

Art Unit: 2627

circumference at regular intervals; an insulating layer interposed between the lower fixed body and the upper fixed body; a moving body installed so as to be corresponded to the lower and upper fixed bodies, moving in the optical axis direction and having a moving electrode at the outer circumference arranged alternately between the lower and upper fixed electrodes; and plural electrode pads for supplying power to the lower fixed body, the upper fixed body and the moving body in order to driving the moving body.

- Applicant asserts: the present invention provides an optical pickup head of an optical recording reproducing apparatus capable of being miniaturized and reducing a fabrication cost by using a MEMS (micro electro mechanical system) technique used for designing, fabricating and application of a microstructure(Specification, p. 2).

### **Conclusion**

9. The prior art made of record in PTO-892 Form and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tianjie Chen whose telephone number is 571-272-7570. The examiner can normally be reached on 8:00-4:30, Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Nguyen can be reached on 571-272-7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2627

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
**TIANJIE CHEN**  
**PRIMARY EXAMINER**